

Digestion

CCK is secreted by the duodenal mucosa when fat- or protein-rich chyme leaves the stomach and enters the duodenum. The hormone acts on the pancreas to stimulate the secretion of a juice rich in digestive enzymes, including trypsinogen, chymotrypsinogen (which are converted to trypsin and chymotrypsin in the duodenum), amylase and lipase. Together these pancreatic digestive enzymes catalyze the digestion of fat, protein, and carbohydrate.

CCK also causes the increased production of hepatic bile, and stimulates the contraction of the gallbladder and the relaxation of the Sphincter of Oddi (Glisson's sphincter), resulting in the delivery of bile into the duodenal part of the small intestine. Bile salts form amphipathic micelles that emulsify fats, aiding in their digestion and absorption.

Neurobiology

As a neuropeptide, CCK mediates satiety by acting on the CCK receptors distributed widely throughout the central nervous system. In humans, CCK administration causes nausea and anxiety, and weakly decreases the desire to eat [1] (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9855480&dopt=Abstract).

The effects of CCK vary between individuals. For example, in rats, CCK administration significantly reduces hunger in young males, but is less effective in older subjects, and even less effective in females. The hunger-suppressive effects of CCK also diminish in obese rats [2] (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9835394).

References

- Greenough A, Cole G, Lewis J, Lockton A, Blundell J (1998). "Untangling the effects of hunger, anxiety, and nausea on energy intake during intravenous cholecystokinin octapeptide (CCK-8) infusion". *Physiol Behav* **65** (2): 303-10. PMID 9855480 (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9855480).
- Fink H, Rex A, Voits M, Voigt JP (1998). "Major biological actions of CCK--a critical evaluation of research findings". *Exp Brain Res* **123** (1-2): 77-83. PMID 9835394 (http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=pubmed&dopt=Abstract&list_uids=9835394).

External links

- Cholecystokinin, NIH/NLM Medical Subject Headings (<http://www.nlm.nih.gov/cgi/mesh/2K/MB.cgi?term=Cholecystokinin>)

Hormones and endocrine glands

Hypothalamus: - TRH - CRH - GnRH - GHRH - somatostatin - dopamine | **Posterior pituitary:** vasopressin - oxytocin - lipotropin | **Anterior pituitary:** GH - ACTH - TSH - LH - FSH - prolactin - MSH - endorphins - lipotropin

Thyroid: T₃ and T₄ - calcitonin | **Parathyroid:** PTH | **Adrenal medulla:** epinephrine - norepinephrine | **Adrenal cortex:** aldosterone - cortisol - DHEA | **Pancreas:** glucagon- insulin - somatostatin | **Ovary:** estradiol - progesterone - inhibin - activin | **Testis:** testosterone - AMH - inhibin | **Pineal gland:** melatonin | **Kidney:** renin - EPO - calcitriol - prostaglandin | **Heart atrium:** ANP

Stomach: gastrin | **Duodenum:** CCK - GIP - secretin - motilin - VIP | **Ileum:** enteroglucagon | **Liver:** IGF-1

Placenta: hCG - HPL - estrogen - progesterone

Adipose tissue: leptin, adiponectin

Target-derived NGF, BDNF, NT-3

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Categories: Hepatology | Intestinal hormones | Neuropeptides

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